

from those of the present invention by the concentration of the hydrogen peroxide and the existence of particles of MgO.

However, careful review of Coury teaches the operation of the system in such a way that when the pump (e.g. 310) is operated, gas ozone and the contaminated liquid are intermixed in the reactor vessel where the catalyst (e.g. 306) is retained (e.g. by granule support plate). The catalyst according to Coury is a particulate material (granulate) and is referred to as a “*free radical inducer*”.

The free radical inducer is one of UV, manganese dioxide, high pH, TiO<sub>2</sub>: “*Also, an assortment of free radical inducers can be used, such as, but not limited to, UV, manganese dioxide, high pH, TiO<sub>2</sub>, to force the initiation step*” (column 14).

In other words, the inducer is one or combination of UV, MgO (assuming manganese dioxide was intended to refer to MgO) etc, which are all intermixed in the reaction vessel with the contaminated liquid and the hydrogen peroxide and gas ozone.

According to Coury, there is no significance to the order of exposure of the contaminated liquid to the different reagents.

Against this, the present invention clearly shows that the specific combination of reaction reagents - MgO/H<sub>2</sub>O<sub>2</sub>/O<sub>2</sub>/UV - significantly enhances free radical generation. Specifically, as shown in Figure 1, the specific combination of MgO/H<sub>2</sub>O<sub>2</sub>/O<sub>2</sub>/UV (-X-) exhibited a significantly greater percentage (%) conversion of salicylic acid as compared to other combinations. The Inventors surprise in the unexpected increase in free radical generation upon the specific steps of mixing the reagents into the liquid prior to irradiation is also stated on page 5 of the PCT publication, at the opening of the Detailed Description portion: “*It has now been surprisingly found that the presence of magnesium oxide in an aqueous mixture containing hydrogen peroxide and oxygen leads to enhanced formation of hydroxyl radicals under UV irradiation*”

In other words, it was unexpected and surprising to find that the increase of radical generation is a result of the order of treatment of the aqueous mixture:



Thus, Coury does not describe or suggest the unexpected enhancement subject of the present invention.

The Examiner then comments that Giamello teaches the formation of free radicals making use of MgO and H<sub>2</sub>O<sub>2</sub> and therefore it would have been obvious to use MgO in the method of Coury. However, it is Applicant’s statement that using, in the method of the present invention, MgO in combination with H<sub>2</sub>O<sub>2</sub> resulted in an undetectable signal, namely, in an undetectable percentage (%) of salicylic acid conversion (which was unknown prior to filing this application and is therefore not even mentioned in the specification). The Inventors are willing to provide a declaration to support this statement. The reason Giamello did detect radical formation is due to the use of the EPR spectroscopy. However, this is by no means an exhibition of an unexpected enhanced radical generation.

In other words, Giamello does not overcome the deficiencies of Coury and does not teach the significance of the order of introducing the reagents into the aqueous mixture prior to irradiation so as to unexpectedly and surprisingly increase the free radical generation, as compared to other reagent combinations, as exemplified in Figure 1.

Inventor: Joshi et al.  
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—3—

The Examiner also refers to Jen et al. and Zhou et al. However, neither publication teaches the unexpected results obtained by the order of steps in the method of the present invention.

Therefore, the present invention is inventive over Coury, alone or in combination with Giamello, Jen and/or Zhou.

**Request for Telephonic Interview**

If an allowance is not forthcoming, the Examiner is respectfully requested prior to mailing a second office action to contact the undersigned to coordinate a mutually-agreed upon telephone interview with this attorney and at least the inventor, Prof. Yoel Sasson in order to clarify the differences between the invention subject of the present application and the prior art.

**Conclusion**

Following the above explanations, and the effected amendments, the Applicant respectfully requests favorable reconsideration and allowance of the claims, as all raised objections and rejections have been duly addressed.

Respectfully submitted

  
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